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ABSTRACT

Every year, K-12 students throughout the U.S. learn about their local community's historical roots and development, economy, weather, climate, and geology. With the increasing prevalence of inquiry-based approaches to teaching and learning in history and science, new possibilities arise for authentic, situated learning activities. One such possibility is linking children's inquiry projects with ongoing community efforts at historic preservation and community development. This paper discusses one example project, and the multiple aspects of development at work within it. The paper relates how the author organized and led a series of after school club activities with 13- and 14-year-old youth, university students, and other educators, including an after school coordinator from a nearby middle school. The paper explains that, loosely following the model used by Fifth Dimension after school clubs, the clubs were tied to university courses in this case: a graduate education course, "Technology-Supported Inquiry Learning" and, in the second year, an undergraduate senior archaeology field seminar. The paper focuses on conceptualizing and tracing the simultaneous, parallel, and linked development of individuals and several communities of practice, including the group of youth and adults involved in this historical inquiry project, the university students participating in related courses, and a group of citizens involved in community development. Appended are highlights of two slide shows. (Contains 36 references and 2 tables.) (BT)

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Inquiry into Local History as a Means to Foster Multiple Levels of Development

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Inquiry into Local History as a Means to Foster Multiple Levels of Development

United States social studies and science educators have long recognized the importance and potential benefit of grounding some portion of the curriculum in local history and local phenomena. Every year, K12 students around the country learn about their local community's historical roots and development, economy, weather, climate and geology. With the increasing prevalence of inquiry-based approaches to teaching and learning in history (Holt, 1990; Levstik & Barton, 1997) and science (Krajcik, Czerniak, & Berger, 1998; Polman, 2000), new possibilities arise for authentic, situated (Brown, Collins, & Duguid, 1989) learning activities. One such possibility is linking children's inquiry projects with ongoing community efforts at historic preservation and community development. In this paper, I discuss one such project, and the multiple aspects of development at work within it.

Oakdale Cemetery (not its real name) is a historically significant African-American cemetery in the older, economically challenged near suburbs of a large Midwestern city. Thousands of African-Americans, including some well-known individuals, were buried in this privately owned cemetery between the 1870s and 1970s, after which the grounds fell into disrepair. In the late 1990s, a community group organized to campaign for stewardship, cleanup, renewal, and historic preservation of the cemetery. In early 2000, the courts turned over control of the cemetery to the community organization, and cleanup efforts began. In addition to local residents, several historians, archaeologists, and educators (including the author) have been involved in these efforts, which have as their eventual goal gaining national historic recognition and using the cemetery for historic interpretation. It is also hoped that the group's efforts will not only beautify a former eyesore, but contribute in at least in some ways to possibilities for economic development in the community.

During the Fall of 2000 and the Fall of 2001, the author organized and led a series of after school club activities with thirteen and fourteen year old youth, students at the university, and other educators including an after school coordinator from the nearby middle school. Loosely following the model used by Fifth Dimension after school clubs (e.g., Cole, 1996), the clubs were tied to university courses; in this case, a graduate

education course on "Technology-Supported Inquiry Learning" and in the second year an undergraduate senior archaeology field seminar. The university students acted as adult facilitators for the youth projects, and as researchers in an apprenticeship role with their professors. During each fall term, the after school group met eight times weekly for two hours at the cemetery and a university technology and learning center. During these sessions, groups of youth learned about the cemetery and carried out open-ended history and science inquiry projects with the guidance of adults. The youth's inquiry projects resulted in the production of digital artifacts, including a PowerPoint slide shows and a digital documentary. At the final session of each term, youth presented their products to their parents, school and university staff.

In this paper, I will focus on conceptualizing and tracing the simultaneous, parallel, and linked development of individuals and several communities of practice, including the group of youth and adults involved in this historical inquiry project, the university students participating in related courses, and a group of citizens involved in community development.

Out-of-School Education with an Orientation toward Social Justice

In recent years, we have seen a growing awareness of and attention on out-of-school education projects that focus on social justice, self-determination, interest, and identity along with individual participant learning. These include new technology-oriented efforts such as the "Fifth Dimension" clubs (e.g., Cole, 1996), Computer Clubhouses (Resnick & Rusk, 1996), and community technology centers (vStreets, 2000), as well as existing youth programs in community-based organizations (Edelson & Joseph, submitted; Heath & McLaughlin, 1993; McLaughlin, 2001). Although informal education related to social justice and self-determination has been going on in the United States since the work of such luminaries as Jane Addams and John Dewey (e.g., 1938/1950) in the progressive era, the context for understanding today's activities has changed.

What is new about much of today's work is that it makes use of a number of new frameworks and analytical tools that have arisen since Dewey's time – in fact entire new fields of investigation that pertain to educational research. Some of these projects use

approaches related to Vygotsky's ideas (e.g., 1978), sociocultural research (e.g., Wertsch, 1991, 1998) and activity theory (e.g., Leont'ev, 1981), while others are more grounded in a "design experiments" (Brown, 1992) method based on situated approaches to cognitive science (Brown, Collins, & Duguid, 1989). Almost all of these strands are concerned with conducting action-oriented, useful research, and the insights they provide potentially permit new ways of looking at complex learning environments, but they have not always been seen as compatible. Until recently, cognitive science research has tended to emphasize individual measures to investigate questions of learning. In the Vygotskian and sociocultural strands, on the other hand, investigations have tended to focus on cultural tools and discourse, and de-emphasize individual cognition and agency. Recent trends in cognitive science that fall under the rubric of "distributed" cognition (e.g., Salomon, 1993) and situated or situative (Greeno, 1997) approaches, along with calls among Vygotskians for inclusion of the individual agent in "irreducible tension" with received cultural tools (Wertsch, 1998) suggest the opportunity for a convergence. Social justice is alive and well in the sociocultural tradition, but has long been a less explicit theme in cognitive science.

Understanding Action Within and Across Communities of Practice

My approach to understanding begins with the idea that concrete *actions* are the most fundamental concern of analysis. Elsewhere (Polman, 2001), I have begun to explore uses of Kenneth Burke's (1969) "pentad" as an analytic lens, following the example of Wertsch (1998). The five elements of the pentad correspond to the journalistic questions "who?" "what?" "why?" "how?" and "where?". Stated succinctly, the pentad forces us to consider how *persons act purposefully with cultural tools within their particular, interpreted context*. Broken down, this refers to

- Persons (who): identity, personal history, understandings, beliefs
- Act (what): micro-, meso-, and macrogenetic scales that inform and color one another
- Purposefully (why): multiple, sometimes competing goals, some explicit and some implicit, some conscious and some unconscious
- With cultural tools (how): tools are half ours and half someone else's (Bakhtin's, 1981, dialogism or Wertsch's irreducible tension), social languages and genres

- Within particular interpreted contexts (where): dynamically interpreted social and cultural context; includes a sense of the appropriate and routine who, what, why and how

In addition, Wenger (1998) has articulated some particularly strong analytic lenses for understanding how communities of practice work. Specifically, he has developed the notions that particular individuals participate in constellations of multiple communities of practice, and have multiple corresponding "identity trajectories". Within a community of practice, many of the developmental trajectories of individuals can be explained by apprentice-like processes and guided participation much like that detailed in the myriad research based on Vygotsky's theories (Vygotsky, 1978) about novices working with more expert others (e.g., Newman, Griffin, & Cole, 1989; Rogoff, 1990; Wertsch, 1985). Wenger (1998) offers some explanation of change within the practices of communities, when he details how practices may be "brokered" across communities through processes of reification in artifacts and participation in action. Just as Wertsch (1998) has noted there is an "irreducible tension" between agents and cultural tools, Wenger notes that artifacts reify certain possibilities for action coming out of a given community of practice, which may be picked up to some degree by participants, but the participants as agents will have particular, one-time agendas and goals in their actions utilizing the artifacts that may or may not match well to the tools and the practices of other communities. In other words, neither the agents' goals in the course of their participation, nor the properties of the artifacts used are deterministic of the actions, but instead the actions are emergent from the combination of these things through the course of participation in activity. When the practices of two different communities come into contact, there is some opportunity to work in what Gutierrez, Rimes, and Larson (1995) refer to as a "third space" between them.

Finally, as Randal Pinkett (2000) has begun to do, I believe it is worthwhile to base educational interventions and research on cognitive notions of constructivism and constructionism (Harel & Papert, 1993), notions of building on cultural capital or "funds of knowledge" (Moll & Greenberg, 1990; Lee, 2001), and also the ideas of asset-based community development (Kretzmann & McKnight, 1993). In the realm of science education, Alberto Rodriguez (1998) refers to a similar constellation of learning theory,

critical theory, and attempts to foster social justice as "sociotransformative constructivism."

Research Context, Participants, and Methods

In our "If Stones Could Talk" clubs, participants learned about a historic African-American cemetery in their local community (referred to here as "Oakdale Cemetery"), and its relation to the overall history of the community. In the Fall of 2000, the club was directed by the author, and also included (a) 10 African-American youth in the 7th grade (i.e., approximately 12-14 years old) from a nearby urban middle school participating in the federally-funded GEAR-UP program (the local NSF grant is administered by my colleague Patricia Simmons at UM-St. Louis). All youth participants were volunteers recruited through a flyer distributed by the school, and no explicit selection criteria were used. Participants included academically successful and unsuccessful youth; (b) a science teacher from the youth's middle school who also supervised after school programs; (c) 8 graduate students enrolled in a course entitled "Project-based, Technology-Rich Learning Environments" (4 of these were practicing teachers pursuing masters degrees, one a former teacher pursuing her doctorate full-time, one a former museum professional pursuing her doctorate, one a masters student simultaneously seeking initial certification, and one a media specialist pursuing her masters; a post-masters colleague of mine from the university was also auditing the course). Six of the students and myself are European-American; two of the students are African-American, and one is Chinese-American. The students were required to attend at least two of the after school sessions, but were not at all of them. The Fall of 2001 group consisted of a similar but larger group, with seven returning 8th grade youth and five new 8th graders, plus a class of fifteen graduate students with a larger proportion of full-time practicing teachers and similar demographics. The Fall 2001 implementation also featured the addition for the first two meetings of the semester of an assistant professor of anthropology with expertise in cemetery archaeology, and 8 undergraduate seniors participating in a field-based archaeology seminar.

The club met on most occasions in our College of Education's E. Desmond Lee Technology and Learning Center (TLC), where I serve as Associate Director. The TLC

has as its mission the development and encouragement of innovative and effective uses of technology for learning; this is accomplished by working with College of Education faculty, undergraduate and graduate students, and community members. It is a modular space with clusters of more than 70 personal computers running Microsoft Windows and Macintosh operating systems and general-purpose as well as educationally targeted software. During the Fall of 2000, we held our second and fourth meetings at the cemetery, to conduct data collection and take digital photos. During Fall of 2001, we held only our second meeting at the cemetery.

My research methods are what I term interpretive case study (Polman, 2000). The term *interpretive* refers to any form of participant observational research that is centrally concerned with the role of meaning in social life, enacted in local situations (Erickson, 1986). The data sources for the case study research are written field notes taken by the undergraduate students and myself, as well as the artifacts created by participants, including copies of notes and PowerPoint presentations archived after each session. With the exception of the author and my university colleagues (Dr. Tim Baumann in anthropology, Dr. Patricia Simmons in Science Education, and Ms. Monya Ruffin, a graduate student in Science Education and Educational Technology), all individuals are identified by pseudonyms.

Case Study of Multiple Developmental Trajectories

There are multiple communities of practice, each of which is involved in some shared endeavor (Wenger, 1998), involved in some way in this activity. The interconnections between the groups are in part established by particular individuals belonging to more than one community of practice, as shown in Table 1.

Community of Practice	Shared Endeavor	Individuals with multiple membership
"Friends of Oakdale"	Preservation, community awareness, historic recognition, interpretation	Dr. Baumann (archaeologist)
After school club	Fun, learning with/about computers, learning history/science, producing artifacts	Polman, Baumann, "Henderson" (school supervisor), graduate students, undergraduate students, youth
Education graduate class	Learning and practicing inquiry-based teaching and learning, researching education	Polman, graduate students
Anthropology undergraduate class	Learning and practicing archaeological study, outreach to youth for the field	Baumann, undergraduate students
Middle school	Development and learning of youth, school improvement, recognition	Henderson, youth

Table 1: Communities of practice related to after school endeavor

In order to illustrate how the communities of practice and the individuals within them can push one another's development reciprocally, I am going to trace some of the action within and around the after school history inquiry clubs. Part of the sequence of events is outlined in Table 2, with column one showing the date in month and year format. Within the table, I separately show the communities of practice of the community development group (the "Friends of Oakdale") and the local history inquiry group (the "If Stones Could Talk" after school club), and the experience of particular individuals who participate in these communities. In this way, I hope to reveal the interrelations between the communities and the individuals.

	Community Development Group	Local history inquiry group	Individual
1 8/99	Cemetery under private ownership and disrepair. A series of money-making schemes have fallen through, and the owner will not spend any money on it. "Friends of Oakdale" organized to spearhead takeover, cleanup, and recognition of cemetery.		Includes university instructor of archaeology, Tim Baumann, an expert on cemeteries
2 9/99		[After school abolitionism inquiry taking place under the guidance of the author, with a similar group (see Polman, 2001, 2002)]	Baumann and the author, Polman, meet and exchange ideas, Fall 1999. Polman has gained experience at orchestrating after school history and technology inquiry.
3 4/00	In spring 2000, the courts turn the cemetery over to the county, who will turn it over to the non-profit "Friends of Oakdale" after involving the Army Corps of Engineers in cleanup.		In spring 2000, Polman takes a job at the nearby university where the archaeology instructor Baumann works. They reconnect.
4 7/00	In summer 2000, the Friends of Oakdale spend many hours cleaning up the cemetery on Saturdays.		In summer 2000, Polman assists with the volunteer cleanup, and organizes after school group to be tied to graduate class and GEAR-UP project in Fall 2000.
5 10/00	Representatives of group facilitate on-site tours of cemetery for after school group.	7th grade youth working with Polman, graduate students in "Technology-Supported Inquiry Learning" course, and a science teacher from their school collect data and digital media, and use these to conduct projects.	Youth learn about digital tools, and are involved in history and science inquiry.

	Community Development Group	Local history inquiry group	Individual
6 10/00		LaTonya and another youth, with Polman's guidance, act as videographers for the group, and later edit a highlights iMovie.	LaTonya builds on outgoing personality, practices public speaking, selection of content, and tech skills.
7 10/00		Demond and Jeffrey, with graduate student's guidance, create a report of lifespans in the cemetery data collected.	Demond and Jeffrey practice math and graphing skills, but do not conduct an inquiry into higher-order questions, instead listing a few summary facts (see Appendix 1). Graduate student who teaches math and is uncomfortable with idea of "not getting something done" pushes youth to triviality.
8 11/00	In part due to efforts of PR staff at the university, several print news stories appear later, garnering essential public attention for the group's effort project.	Youth see their efforts praised in print media.	Youth see their efforts praised in print media.
9 11/00	Representatives of cemetery group and school attend youth presentations.	Youth give presentations. Youth are recognized for their exemplary efforts before the community and their parents.	Youth practice public speaking.
10 11/00		School personnel spread the word on the project and the youth repeat presentations to the school board.	Youth practice public speaking.

	Community Development Group	Local history inquiry group	Individual
11	In a radio interview about the cemetery restoration and preservation effort, Baumann cites the involvement of youth in the inquiry and cleanup.	Baumann helps Polman and a graduate assistant (Ruffin) plan more archaeologically rich and rigorous cemetery inquiry for Fall 2001, to be conducted with the support of his archaeology senior seminar.	Baumann sees extended possibilities for cemetery interpretation through active inquiry. Polman and Ruffin understand the archaeological research process and possibilities better.
12	Baumann as representative of cemetery group facilitates on-site tour and data collection.	8th grade youth (about half returnees) working with Polman, Ruffin, graduate students in "Technology-Supported Inquiry Learning" course, as well as Baumann and his undergraduate archaeology students, and a science teacher from their school collect data and digital media at the cemetery.	People learn about preservation, local African-American history and burial customs, and some of the tools and techniques of archaeology in the process of collecting data.
13	The group is mentioned on the evening news, garnering essential public awareness.	The group is on the evening news, which gets talked about at school and the video shown at the next club session.	
14		Over a period of weeks the youth and adults use the photos and data to conduct research projects and create presentations. The theme is "how things have changed over time."	People learn in the process of doing inquiry—tech skills, analysis, representation, communication.

	Community Development Group	Local history inquiry group	Individual
15		LaTonya, Kiara, and Alya work with graduate students to define questions answerable by the extended dataset, frame their initial ideas, and create a polished presentation.	LaTonya returns and wants to do more digital movies. This is no longer an option due to the "tightening" to focus more on content. She chafes at this, but participates productively in data collection and a group inquiry. Interestingly, the inquiry moves beyond the scaffolded "changes over time" to the youths own question about "seasons of deaths," culminating in a simple, elegant analysis (see Appendix 2).
16	Representative of cemetery group, school district personnel including superintendent, and local historic preservationists attend youth presentations.	Youth give presentations	Public speaking.
17	Teachers and youth from another nearby school get involved.	[implementation of new, in-school inquiry groups]	Ruffin brokers project to teacher who participated in summer 2001 archaeological field school with Baumann.

Table 2: Brief narrative of action within and across communities of practice

The parallel and intersecting narratives traced in Table 2 reveal that a good deal of the interesting and productive action, in terms of moving development of the communities of practice, and of the individuals, involved what Wenger (1998) termed "brokering" practices from one context to a new context. These require the support of either reifying artifacts across boundaries, or the participation of individuals who belong to multiple communities, or (most ideally) both. For instance,

- In row 4, I brokered the after school inquiry project to the community group, based on his previous experience with similar after school clubs (row 2).
- In row 5, I brokered open-ended inquiry projects in general and the cemetery project in particular to my university class.
- In row 6, Latonya brokered reportage techniques familiar from the artifacts on seen on television to the Fall 2000 club.
- In row 6, I brokered digital editing basics as embodied in the iMovie interface and supported through my participation as a guide to Latonya and her partner.
- In row 11, Dr. Baumann brokered archaeology data collection and analysis techniques to the after school inquiry group leaders. These techniques were embodied in artifacts such as articles and descriptions of analyses, and were supported by him through participation in our club activities in the Fall of 2001 (row 12).
- In row 11, I brokered the notion of open-ended inquiry projects by youth as a legitimate and powerful form of interpretation of the past to the Friends of Greenwood group. Such activities where youth construct their own understanding with the support of experts in the process of building artifacts, rather than the experts "telling" history, differs from standard notions of history interpretation at historic sites, and is supported by the artifacts created by the youth, as well as the my own and my students' ongoing participation.
- In row 15, Latonya and her group brokered the framing of an inquiry question different from that scaffolded to Fall 2001 club, in effect taking ideas from the Fall 2000 activities into Fall 2001.

Conclusion

Inquiry into local history that engages the interests of individuals and groups of committed individuals offers great promise as a meaningful informal learning opportunity for youth. Not only may the youth gain some degree of mastery of historical and scientific inquiry as well as technology practices, but the meaningfulness and value of the activities may encourage greater levels of appropriation by the youth (Polman, 2001; Wertsch, 1998). In other words, the youth may not only learn how to do history and use technology, but they may make these sorts of practice their own, and transform their identities as learners in the process. Through this narrative analysis of action within and across communities of practice, I have shown how community development and individual development may interrelate and reciprocally reinforce one another. Further study should reveal greater nuance in the mechanisms at the micro- and macro- levels.

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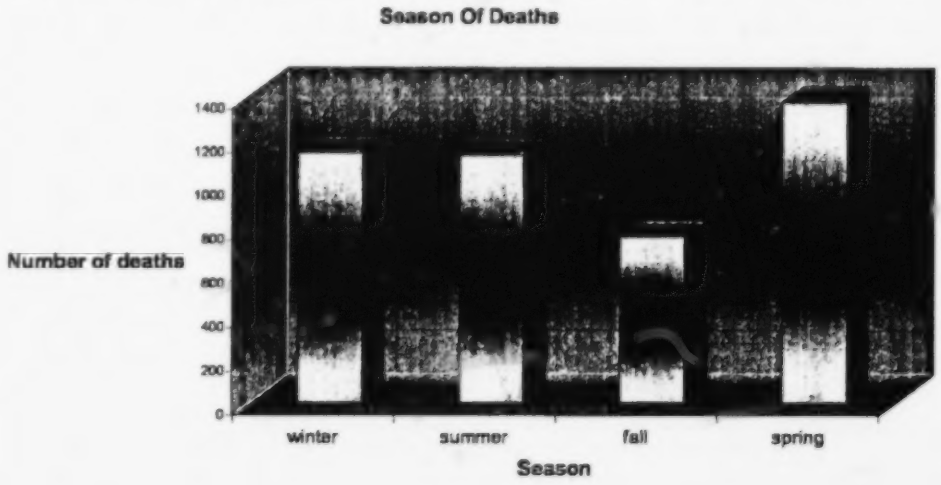
APPENDIX 1

Highlights of Demond and Jeffrey's Slideshow, Fall 2000

Slide	Contents
1	**If Stones Could Talk** Lifespan Study
2	**Introduction** • In our study we collected data on the life span of people buried in Greenwood Cemetery. • Presented By: Demond and Jeffrey
3	**Topics of Discussion** • We Divided The Life Span Into Ten Year Periods. • We Counted The Number Of People With The Life Span In each Ten Year Period.
4	**Topic One** • The Longest Life Span, The Average Life Span, and The Youngest Life Span. • The Longest lived to be 103,The Average was 50,and the Youngest lived to be 1.
5	[graph of lifespans]

APPENDIX 2

Overview of final slideshow created by Latonya's group, Fall 2001

Slide	Contents
1	**Seasons Of Deaths** At Greenwood Cemetery By Kiara, LaTonya & Alya
2	**Our Question** Which season has the most deaths? Why?
3	**Kiara's Hypothesis** I think that Winter would be the biggest season for deaths because winter is a season where people have pneumonia and very bad colds. I think it's rougher in the winter because of the weather.
4	**LaTonya's Hypothesis** I think that summer would be the biggest season of deaths because summer is hot and heat strokes are very common in the summer.
5	**Alya's Hypothesis** I think Spring will have the most deaths, because of people who have allergies and asthma get sick from plants and grass smell.
6	**Our Results** More people passed in spring, because of their sickness before spring, or just gave up. 

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